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BLAKELY SOKOLOFF TAYLOR & ZAFMAN
12400 WILSHIRE BOULEVARD, SEVENTH FLOOR
LOS ANGELES, CA 90025

EXAMINER

CHEN, TSE W

ART UNIT PAPER NUMBER

2116

6

DATE MAILED: 03/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/835,034

Applicant(s)

OLSEN ET AL.

Examiner

Tse Chen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply .

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 April 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 April 2001 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) 5) ☐ Notice of Informal Patent Application (PTO-152)
Paper No(s)/Mail Date _____ 6) ☐ Other: _____

DETAILED ACTION

Specification

1. The disclosure is objected to because the Brief Summary of the Invention is missing. See MPEP § 608.01(d). A brief summary or general statement of the invention as set forth in 37 CFR 1.73. The summary is separate and distinct from the abstract and is directed toward the invention rather than the disclosure as a whole. The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and preferably indicated in the Background of the Invention). In chemical cases it should point out in general terms the utility of the invention. If possible, the nature and gist of the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention. Appropriate correction is required.
2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.
3. Claims 20-23 are objected to because of the following informalities: the "method" should be corrected to "article of manufacture" to correspond with the referenced claim number 19. Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-5 and 19-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Devanagundy et al., U.S. Patent 6002737, hereinafter referred to as Devanagundy, in view of Cave, U.S. Patent 6232808.

6. As per claim 1, Devanagundy taught an invention to time multiple events, the invention comprising of:

- Receiving a set of at least two durations, each duration corresponding to a respective action signal to be sent at the end of the respective duration [FIG. 4, item 352; column 6, lines 1-3, 10-13];
- Determining an expiration time corresponding to each duration [column 5, lines 54-59; column 7, lines 36-40]; and
- Sending the action signal corresponding to the selected expiration time when the selected expiration time occurs [column 6, lines 10-13].

7. However, Devanagundy did not expressly disclose selecting an expiration time based on chronological order.

8. Cave taught an invention to time irregular interval events, the invention comprising of:

- Receiving a set of expiration times, each expiration time corresponding to a respective action signal to be sent at the end of the expiration time [column 7, lines 1-17]; and
- Selecting the expiration time that is first to occur to provide a selected expiration time [column 7, lines 13-21].

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9. An ordinary artisan at the same time the invention was made would have been motivated to look for an efficient and cost-effective way to time events [see Cave: column 2, lines 39-47; column 4, lines 50-67; column 5, lines 4-54]. Additionally, having the capability to time events in a chronological manner complies with the expected functionality of a timer. It is only logical to time a series of events in a chronological manner to ensure total coverage of the events.

10. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Cave and Devanagundy because of the aforementioned motivations and also their involvement in similar problems regarding the timing of multiple events.

11. As per claim 2, Devanagundy taught determining a received time for each duration to determine a corresponding expiration time [FIG. 4, item 320; column 2, lines 54-65].

12. As per claim 3, Devanagundy taught determining an expiration time includes adding the corresponding duration and received time [FIG. 4, item 430].

13. As per claim 4, Cave taught selecting the expiration time that is first to occur includes comparing the expiration times [column 7, lines 13-21].

14. As per claim 5, Cave taught determining when the selected expiration time occurs by setting a clock to send a signal at the expiration time [column 7, lines 25-48].

15. As per claims 19-23, Devanagundy can Cave taught method; therefore, Devanagundy and Cave taught article of manufacture¹.

¹ Tanenbaum, "Structured Computer Organization", 2nd Edition, pg. 11.

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16. Claims 6-9 and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cave, U.S. Patent 6232808, in view of Short et al., U.S. Patent 5708814, hereinafter referred to as Short, and Devanagundy et al., U.S. Patent 6002737, hereinafter referred to as Devanagundy.

17. As per claim 6, Cave taught an invention to time irregular interval events, the invention comprising of:

- Determining a first expiration time and a second expiration time [FIG. 2B, items TV1 and TV2; column 7, lines 1-6];
- Comparing the first expiration time to the second expiration time [column 7, lines 17-21];
- Selecting the first expiration time if the first expiration time is less than the second expiration time and selecting the second expiration time if the second expiration time is less than the first expiration time [column 7, lines 15-17, lines 27-29]²; and
- Setting a signal send time approximately equal to the selected one of the expiration times [column 7, lines 29-32]³.

18. However, Cave did not expressly disclose a way to handle events that have expiration times that are approximately equal.

19. Short taught an invention to handle multiple events, the invention comprising of:

- Selecting both the first and second expiration times if the expiration times are approximately equal [column 3, lines 58-64]⁴; and

² When there are only two elements in a queue, the lesser (earlier) expiration time would be selected to be loaded into the compare register due to the chronological ordering of the expiration times.

³ The signal send time is set to the selected expiration time upon loading of the compare register.

⁴ Approximately equal times defined by the delay time value will be selected to have a common interrupt.

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- Setting a signal send time approximately equal to the first and second expiration times [column 4, lines 9-12; column 6, lines 12-15].

20. However, Cave and Short did not expressly disclose a timing mechanism for generating a call back signal.

21. Devanagundy taught an invention to time multiple events, the invention comprising of:

- Determining a start time [FIG. 4, item 320; column 6, lines 30-32];
- Determining a time difference between the signal send time and the start time [FIG. 4, item 352; column 6, lines 6-8, lines 33-40];
- Setting a time period approximately equal to the time difference [FIG. 4, item 352; column 6, lines 34-36];
- Setting a timer to send a callback signal at the end of the time period [column 5, lines 41-51];
- Starting the timer at the start time [column 6, lines 44-45]; and
- Once the timer sends the call back signal, sending the action signal(s) corresponding to the selected expiration time [column 6, lines 1-3, lines 10-14].

22. An ordinary artisan at the same time the invention was made would have been motivated to look for a more efficient way to handle multiple events with approximately equal request/expiration times [see Short: column 1, lines 13-50] and also different time out periods [see Devanagundy: column 1, lines 46-59].

23. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Short, Cave, and Devanagundy because of the

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aforementioned motivations and also their involvement in similar problems regarding the timing and handling of multiple events.

24. As per claim 7, Devanagundy taught receiving a first time duration corresponding to a first action signal [FIG. 4, item 352] and determining a first received time corresponding to a current time indicated by a clock when the first time duration was received [FIG. 4, item 320; column 2, lines 54-65].

25. As per claim 8, Devanagundy taught determining an expiration time includes adding the corresponding duration and received time [FIG. 4, item 430].

26. As per claim 9, Case taught sequentially handling next event after expiration of previous event [column 7, lines 34-35].

27. As per claims 24-25, Short, Devanagundy and Cave taught method; therefore, Short, Devanagundy and Cave taught article of manufacture.

28. Claims 10 and 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Short, Cave, and Devanagundy as applied to claim 6 above, and further in view of Cave, U.S. Patent 6314524, hereinafter referred to as ReCave.

29. Short, Cave, and Devanagundy taught an invention to time multiple events with approximately equal expiration times and a callback timer.

30. However, Short, Cave, and Devanagundy did not expressly disclose a way to handle repetitive events.

31. ReCave taught an invention to time multiple events, the invention comprising of:

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- Checking a first indicator upon sending the first action signal, the first indicator corresponding to whether the first action signal should be sent again [FIG. 3, item 301]; and
- Determining a third expiration time if the first indicator indicates the first action signal should be sent again [FIG. 3, item 305].

32. An ordinary artisan at the same time the invention was made would have been motivated to look for a way to handle repetitive events needed in applications such as computer screen updates [see ReCave: column 2, lines 40-67].

33. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of ReCave, Short, Cave, and Devanagundy because of the aforementioned motivation and also their involvement in similar problems regarding the timing and handling of multiple events.

34. Claims 11-12 and 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Devanagundy et al., U.S. Patent 6002737, hereinafter referred to as Devanagundy, in view of Cave, U.S. Patent 6232808.

35. As per claim 11, Devanagundy taught an invention to time multiple events, the invention comprising of:

- Receiving a set of at least two durations, each duration corresponding to a respective action signal to be sent at the end of the respective duration [FIG. 4, item 352; column 6, lines 1-3, 10-13];
- Determining a received time for each duration to determine a corresponding

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expiration time [FIG. 4, item 320; column 2, lines 54-65].

- Determining an expiration time corresponding to each duration [column 5, lines 54-59; column 7, lines 36-40];
- Determining an expiration time includes adding the corresponding duration and received time [FIG. 4, item 430];
- Determining a start time [FIG. 4, item 320; column 6, lines 30-32];
- Determining a time difference between the signal send time and the start time [FIG. 4, item 352; column 6, lines 6-8, lines 33-40];
- Setting a time period approximately equal to the time difference [FIG. 4, item 352; column 6, lines 34-36];
- Setting a timer to send a callback signal at the end of the time period [column 5, lines 41-51];
- Starting the timer at the start time [column 6, lines 44-45]; and
- Once the timer sends the call back signal, sending the action signal(s) corresponding to the selected expiration time [column 6, lines 1-3, lines 10-14].

36. However, Devanagundy did not expressly disclose selecting an expiration time based on chronological order.

37. Cave taught an invention to time irregular interval events, the invention comprising of:

- Determining a set of expiration times corresponding to a set of durations [FIG. 2B; column 7, lines 1-6];
- Comparing the first expiration time to the second expiration time [column 7, lines 17-21];

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- Selecting the expiration time that is first to occur to provide a selected expiration time [column 7, lines 13-21]; and
- Setting a signal send time approximately equal to the selected one of the expiration times [column 7, lines 29-32].

38. An ordinary artisan at the same time the invention was made would have been motivated to look for an efficient and cost-effective way to time events [see Cave: column 2, lines 39-47; column 4, lines 50-67; column 5, lines 4-54]. Additionally, having the capability to time events in a chronological manner complies with the expected functionality of a timer. It is only logical to time a series of events in a chronological manner to ensure total coverage of the events.

39. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Cave and Devanagundy because of the aforementioned motivations and also their involvement in similar problems regarding the timing of multiple events.

40. As per claim 12, Case taught sequentially handling next event after expiration of previous event [column 7, lines 34-35].

41. As per claims 27-28, Devanagundy and Cave taught method; therefore, Devanagundy and Cave taught article of manufacture.

42. Claims 13-14 and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cave and Devanagundy as applied to claim 11 above, and further in view of Cave, U.S. Patent 6314524, hereinafter referred to as ReCave.

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43. Cave and Devanagundy taught an invention to time multiple events with approximately equal expiration times and a callback timer.

44. However, Cave and Devanagundy did not expressly disclose a way to handle repetitive events.

45. ReCave taught an invention to time multiple events, the invention comprising of:

- Checking a first indicator upon sending the first action signal, the first indicator corresponding to whether the first action signal should be sent again [FIG. 3, item 301]; and
- Determining a third expiration time if the first indicator indicates the first action signal should be sent again [FIG. 3, item 305].

46. An ordinary artisan at the same time the invention was made would have been motivated to look for a way to handle repetitive events needed in applications such as computer screen updates [see ReCave: column 2, lines 40-67].

47. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of ReCave, Cave, and Devanagundy because of the aforementioned motivation and also their involvement in similar problems regarding the timing and handling of multiple events.

48. Claims 15-16 and 31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Basso et al., U.S. Patent 5491815, hereinafter referred to as Basso, in view of Cave, U.S. Patent 6232808, and Devanagundy et al., U.S. Patent 6002737, hereinafter referred to as Devanagundy.

49. As per claim 15, Basso taught an invention to handle multiple timers, the invention comprising of:

- Receiving first timing information corresponding to a first action signal, the first timing information including a first duration and a first flag [column 4, lines 46-53];
- If the first flag indicated an active status, determining a first expiration time, and including the first expiration time in a set of expiration times to be considered [column 6, lines 59-63]; and
- Doing likewise as first timing information when receiving second timing information [column 3, lines 24-35].

50. However, Basso did not expressly disclose selecting an expiration time based on chronological order.

51. Cave taught an invention to time irregular interval events, the invention comprising of:

- Receiving a set of expiration times, each expiration time corresponding to a respective action signal to be sent at the end of the expiration time [column 7, lines 1-17]; and
- Selecting the expiration time that is first to occur to provide a selected expiration time [column 7, lines 13-21].

52. However, Cave and Basso did not expressly disclose a timing mechanism for generating a call back signal.

53. Devanagundy taught an invention to time multiple events, the invention comprising of:

- Determining a start time [FIG. 4, item 320; column 6, lines 30-32];

- Determining a time difference between the signal send time and the start time [FIG. 4, item 352; column 6, lines 6-8, lines 33-40];
- Setting a time period approximately equal to the time difference [FIG. 4, item 352; column 6, lines 34-36];
- Setting a timer to send a callback signal at the end of the time period [column 5, lines 41-51];
- Starting the timer at the start time [column 6, lines 44-45]; and
- Once the timer sends the call back signal, sending the action signal(s) corresponding to the selected expiration time [column 6, lines 1-3, lines 10-14].

54. An ordinary artisan at the same time the invention was made would have been motivated to look for an efficient and cost-effective way to time events [see Cave: column 2, lines 39-47; column 4, lines 50-67; column 5, lines 4-54] with different time out periods [see Devanagundy: column 1, lines 46-59]. Additionally, having the capability to time events in a chronological manner complies with the expected functionality of a timer. It is only logical to time a series of events in a chronological manner to ensure total coverage of the events.

55. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Basso, Cave, and Devanagundy because of the aforementioned motivations and also their involvement in similar problems regarding the timing and handling of multiple events.

56. As per claim 16, Basso taught at least one of the flags corresponding to the selected expiration time is set to an inactive status once the corresponding action signal is sent [column 8, lines 59-65].

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57. As per claims 31-32, Basso, Devanagundy and Cave taught method; therefore, Basso, Devanagundy and Cave taught article of manufacture.

58. Claims 17-18 and 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Basso, Cave, and Devanagundy as applied to claim 15 above, and further in view of Cave, U.S. Patent 6314524, hereinafter referred to as ReCave.

59. Basso, Cave, and Devanagundy taught an invention to sequentially handling next event after expiration of previous event [see Cave: column 7, lines 34-35] with status flags and a callback timer.

60. However, Basso, Cave, and Devanagundy did not expressly disclose a way to handle repetitive events.

61. ReCave taught an invention to time multiple events, the invention comprising of:

- Checking a first indicator upon sending the first action signal, the first indicator corresponding to whether the first action signal should be sent again [FIG. 3, item 301]; and
- Determining a third expiration time if the first indicator indicates the first action signal should be sent again [FIG. 3, item 305].

62. Since the flag as taught by Basso is used to indicate active or inactive status of the event entity, the determination of a third expiration time based on the first indicator as taught by ReCave would logically have depended upon the checking of the status flag.

63. An ordinary artisan at the same time the invention was made would have been motivated to look for a way to handle repetitive events needed in applications such as computer screen updates [see ReCave: column 2, lines 40-67].

64. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of ReCave, Basso, Cave, and Devanagundy because of the aforementioned motivation and also their involvement in similar problems regarding the timing and handling of multiple events.

Conclusion

65. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Patterson et al., U.S. Patent 6320882, disclosed an invention to handle multiple events with similar expiration times.
- b. Gulick, U.S. Patent 6418459, disclosed an invention to schedule a plurality of tasks in a non-real time operating system.
- c. Thayer, U.S. Patent 5297275, disclosed an invention to time multiple variable events with different resolutions.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tse Chen whose telephone number is (703) 305-8580. The examiner can normally be reached on Monday - Friday 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Lee can be reached on (703) 305-9717. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tse Chen
March 16, 2004



THOMAS LEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100